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DEPARTMENT OF COMMERCE - BUREAU OF MINES

TWENTY LIVE REASONS FOR FIRST-AID TRAINING IN CALIFORNIA[1]

By Emory Smith[2]

INTRODUCTION

The preface of the United States Bureau of Mines Manual of First Aid Instruction contains the following paragraphs:

> One of the most important inquiries that Congress has authorized the Bureau of Mines to conduct relates to health conditions among those engaged in the mineral industries. Investigations made early with a view to bettering these conditions demonstrated the need of prompt care of injured miners, as, under the difficulties inherent to mining and other mineral industries, wounds seemingly unimportant, if not treated promptly, may become infected and possibly cause permanent crippling or even death of the person. In the past many seriously injured persons have been treated by fellow workers ignorant of approved means of treatment and transportation and have been handled in such a manner as to cause suffering and to accentuate injuries to such a degree as to bring about permanent disablement. Accordingly, the need of general instruction in first aid became apparent.
>
> It must be recognized that the conditions in and about the mines, mills, smelters, quarries, oil fields, etc., usually present difficulties not found in large industrial centers where experienced surgeons are available and hospitals close at hand. Many mines are isolated and, when an accident occurs several miles underground, there may be a serious lapse of time before the injured person can be brought to the surface and taken to the hospital or given attention by a surgeon who may have to come a long distance. Under such conditions it has been frequently demonstrated that, if effective first aid is not given, the injured person may die or become permanently crippled...

First-aid instruction has been found to be an excellent aid[3] in preventing accidents. In addition to the immediate relief of injured persons, it has been found that most persons while in the act of practicing dressings for

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1 The Bureau of Mines will welcome reprinting of this paper, provided the following footnote acknowledgment is used: "Reprinted from U. S. Bureau of Mines Information Circular 6426."

2 Foreman miner, safety division, U. S. Bureau of Mines, Berkeley, Calif.

3 Murray, A. L., Some Phases of Accident Prevention in Industry: Information Circular 6055, Bureau of Mines, 1927, 3 pp.

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injuries are very likely to become interested in the way such injuries are received. From this point onward, under an intelligent instructor, first-aid training becomes accident-prevention work of a highly effective nature. This latter feature has an especial appeal to many companies that are conscientiously working to reduce their accident rates, and the popularity of the training has grown with the years to such an extent that the bureau is now unable to provide enough instructors to meet the demand; this fact has been largely instrumental in causing many companies to include the course in the regular program of their safety department, using their own instructors to do the training.

To arrive at the real value of first-aid training, when used either as an accident-prevention measure or in actually dressing injured persons, consideration should be given to the effects of accidents on the community as well as on the mine or plant. The result of an accident, industrial or otherwise, is not confined to the mere physical suffering from the injury, but because of the time lost from work there is also a loss of wages, or if the injury is serious the earning power may be permanently impaired or destroyed and a case of dependency is very likely to result. The loss of wages affects not only the worker and his immediate family, but the lowered buying power of the family will also have its effect on the fortunes of the business men of the community. Thus, while the families of the injured wage earners will be the chief sufferers, the cost of all accidents must eventually be shared by the community. Directly or indirectly, the community must support those unable to support themselves, and the direct cost of supporting the crippled inmate at some institution is probably no greater than the indirect cost of supporting the crippled street peddler.

It is customary, when a first-aid class is being planned or under way, to stress the value of the training as an accident-prevention measure, and when a comparison can be made of the frequency or severity rates before and after the campaign, the comparative figures in many instances bear out the assertion that universal first-aid training is one of the greatest accident prevention measures that can be recommended by the Bureau of Mines.

This widespread use of first-aid training as a means of achieving industrial safety has increased in recent years to such proportions that it tends to obscure the original purpose of the training, which was simply to prevent unnecessary suffering or loss of life pending arrival of the doctor. While it is true that an ounce of prevention is worth a pound of cure, once the accident has occurred the pound of cure becomes an urgent necessity which only the trained person can supply.

Moreover, it should be remembered that the knowledge of first-aid methods, gained at classes fostered by any agency, is equally applicable in industrial and nonindustrial accidents. The frequency and severity rates will show the effects of first-aid training on the accident record of the mine or plant, but such charts do not reflect the benefits of successful application of first-aid treatment at home or in the general walks of life. The accident-prevention

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records of a company, therefore, do not show the true measure of service rendered to a community by a company which includes first-aid training in its safety work.

This has been borne out in several instances where men trained in first aid at classes sponsored by their employers have been able to save lives in nonindustrial accidents. Two such instances (cases 1 and 2 below) occurred following first-aid classes conducted during the spring of 1929 by the Bureau of Mines for employees of the Associated Oil Co. at Ventura, Calif.

CASES OF APPLIED FIRST AID

Case 1 - Injury while off duty:

In November, 1929, a group of oil workers at Ventura, Calif., were engaged in a friendly scuffle while off duty. During the mixup one of the men thrust his right arm through a window, severing the artery just below the elbow. Tolliver F. Miller, an employee of the Associated Oil Co., who had attended the first-aid classes of the previous spring, happened to be present. Miller successfully applied a tourniquet to the injured arm and removed the injured man to a hospital for treatment.

Case 2 - Injury in the home:

Christie Theis was another of the Associated Oil Co.'s employees who attended the classes. In January, 1930, the daughter of his next door neighbor fell upon a piece of glass and cut the artery over her left eye. Unsuccessful attempts were made to check the bleeding by using compresses. Theis, who was just leaving for work, was called and successfully applied digital pressure to the artery at the temple, stopping the flow of blood until a doctor could be summoned.

Case 3 - Automobile accident:

On September 27, 1930, an automobile accident occurred in which a woman was thrown through the windshield of the car, severing the artery in the right side of her throat. Fred Thieme, of the Pacific Portland Cement Co., Redwood City, Calif., was riding in a car immediately behind the wrecked automobile. Thieme managed to pinch the artery between his fingers, and when an ambulance could not reach the scene of the accident because of the extremely heavy traffic, he accompanied the woman while she was being transported to a hospital in an ordinary automobile, successfully holding the artery for half an hour.

Case 4 - Emergency in the home:

In July, 1929, Judson Conner attended the first-aid classes conducted by the Bureau of Mines at the Redwood City, Calif., plant of the Pacific Portland Cement Co. Conner began his attendance on Monday; on Tuesday he learned how to

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remove foreign matter from the throat of choking persons; and on Wednesday a piece of phlegm slipped into the windpipe of his infant daughter, resulting in suffocation. Conner returned home at this critical time, and finding the child's face black, remembered his lesson of the previous day. He picked the baby up by the heels and slapped her smartly between the shoulders, successful dislodging the phlegm.

Not always does the first-aid man have an opportunity to exercise hi knowledge while the course is so fresh in his mind.

Case 5 - Electrocution:

In this case the first-aid man, who was also trained by the Bureau o Mines, found no practical use for the training for over 12 years, yet when an emergency arose he remembered his training and saved a life. At one of the diatomaceous earth quarries of the Celite Corporation, Lompoc, Calif., the insulation wore off a power line carrying 440 volts, and on March 15, 1929, the switchbox of a dragline scraper became charged so that the current grounded through the body of the dragline operator when he attempted to work the starti box lever. He was discovered, unconscious, not breathing, by Felice Pivato, a fellow worker who investigated when his signals were not answered. Pivato first broke the circuit by opening the line switch, and then placing the unconscious man on his face, administered the Schaefer method of artificial respiration for about 20 minutes until breathing was resumed, after which he sent the injured man to the hospital.

ELECTROCUTION ACCIDENTS FROM HIGH-TENSION LINES

The Southern California Edison Co., a public utility corporation with mining affiliations making its employees eligible for Bureau of Mines training, employs a very capable first-aid instructor who has trained several hundred men. The records of this company show that it has five men who hold the coveted Ins medal, which is awarded only to men who have successfully applied the Schaefer method of artificial respiration to men who have been electrocuted.

Case 6:

On November 15, 1923, an electrician came in contact with a conductor carrying 16,000 volts at the substation at Santa Paula, Calif. The substation operator, J. C. Gaertner, administered the Schaefer method of artificial respiration for 15 minutes, until breathing was resumed by the patient.

Case 7:

On March 30, 1925, a linoman came in contact with a conductor carrying 11,000 volts at the substation at Katella, Calif., and was rendered unconscious. The substation operator, J. G. Rhoday, administered the Schaefer method of artificial respiration for about 30 minutes. The patient recovered.

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Case 8:

On February 5, 1927, a lineman who was working on a pole at Monrovia, Calif., came in contact with a line carrying 4,000 volts. The gang foreman, E. F. Fees, successfully removed the unconscious injured man from the pole and administered the Schaefer method of artificial respiration for about 20 minutes, after which the patient resumed breathing.

Case 9:

On January 12, 1928, a lineman at Compton, Calif., in removing the slack from a wire pulled it in contact with a line carrying 4,000 volts and was rendered unconscious. The senior lineman, Fred R. Jones, applied the Schaefer method of artificial respiration for about 10 minutes, and the patient recovered.

Case 10:

On November 5, 1929, an electrician employed by an oil company at Santa Fe Springs, Calif., came in contact with a conductor carrying 4,000 volts. E. W. Horsley, a service-gang foreman of the Southern California Edison Co., and his assistant, J. W. Ferguson, applied the Schaefer method of artificial respiration to the unconscious man until he recovered, about 20 minutes later.

The operator in case 7 was trained by the Bureau of Mines, while the operators in cases 3, 4, 5, and 6 as well as in cases 11 and 12, were trained by the company instructor. Cases 10 and 11 are also examples of the service rendered to a community by an industrial concern training its employees in first aid to the injured.

Case 11 - Drowning boy revived:

On August 17, 1928, as Pat Crowe, a "trouble" man employed by the Southern California Edison Co., was standing in a drug store, a man rushed in saying that a boy had been drowned in a swimming pool a few blocks away. Crowe and the druggist immediately drove to the pool, where they found the life guard and others who had worked on the boy, and who had given him up for dead. Crowe shook the boy to dislodge any water from the lungs, applied the Schaefer method of artificial respiration for only five minutes, and the boy resumed breathing.

Case 12 - Struck by a truck:

The Southern California Edison Co. instructor also found time to train members of the Huntington Park, Calif., fire department in the Bureau of Mines methods of first aid, and this training was instrumental in saving a life when a traffic accident occurred in front of the fire station.

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On March 27, 1930, at Huntington Park, Calif., an autoist left his car and started across the street in front of the fire house. With his mind apparently on matters other than traffic, he walked into the side of a passing truck, one corner of which struck him in the head, inflicting a basic fracture of the skull and severing an artery at the temple. Members of the fire crew witnessed the accident, and Captain Charles Holcomb, assisted by Willard Lavenbarg, William Harris, and William Julian, firemen, applied digital pressure, successfully stopping the flow of blood, and otherwise cared for the injured man until arrival of the ambulance. The patient recovered.

Case 13 - Asphyxiation by gasoline vapors:

The Shell Oil Co. of California has for many years been interested in first-aid training, and in addition to encouraging its employees to attend classes conducted by the Bureau of Mines, this company has a number of very capable instructors who conduct classes each year. Men trained at these classes have successfully treated the victims of several accidents, both at work and away from it, where the life of the injured person depended upon prompt and efficient first-aid treatment.

On October 1, 1925, one of the men employed at the Watson Refinery of the Shell Oil Co. was overcome by casing-head gas while working in a tank car. He was rescued unconscious and not breathing, and Dan Sheldon, a stabilizer operator, performed the Schaefer method of artificial respiration for about 30 minutes, until breathing was resumed. In this case an oxygen inhaler was used with the artificial respiration.

Case 14 - Throat cut:

On October 25, 1927, an automobile accident occurred in Los Angeles, Calif., in which a man was thrown through the windshield of his car, severing the carotid artery in the right side of his throat. C. G. Bateman, an employee of the Shell Oil Co. at the Watson Refinery, who had been trained in first aid both by the Bureau of Mines and by the company instructor, was present and managed to grasp the end of the severed artery in his fingers, successfully pinching it down for about five minutes while the injured man was being rushed to the hospital in a police car. The patient recovered.

Case 15 - Asphyxiation by hydrogen sulphide:

On December 12, 1927, a workman at the Dominguez Refinery of the Shell Oil Co. was overcome by hydrogen sulphide gas while working in a valve box. The victim, who had discarded the gas mask provided for his safety, was rescued by nearby workers and removed to fresh air where the Schaefer method of artificial respiration was applied with ultimate success in an hour and 20 minutes by Fire Chief B. E. Bernius, Assistant Fire Chief C. H. Pierce, F. L. Maddy, and William Curry, all employees of the Shell Oil Co., who had been trained in first aid by the Bureau of Mines. Artificial respiration in this case was supplemented by an oxygen inhaler.

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The Shell Oil Co. has expended considerable effort in teaching first aid to its field as well as refinery employees, and that this training has been the means of saving at least four lives is indicated in the following statement of results attained:

Case 16 - Electrocution by a live wire on the street:

William Avery, well puller at Long Beach, saved the life of a lineman repairing an electric wire in front of his house. The lineman came in contact with a live wire and fell from the pole to the ground. He was unconscious from the shock. Avery ran from the house and gave the injured man artificial respiration which saved his life.

Cases 17 and 18 - Arteries severed in automobile accidents:

Howard Wineland, garage mechanic, Santa Fe Springs, two days after he received first-aid instructions applied a tourniquet to a child who had received a severed artery in an automobile accident. He also applied a tourniquet on another man injured in an automobile accident. In both cases the doctor treating them stated that the application of the tourniquet saved the lives of the patients.

Case 19 - Drowning Baby revived:

In another case, Pete Hammer, pipe line foreman, Santa Fe Springs and Brea, three days after receiving first-aid training saved his child's life in the following manner: The child was in the bath tub and Hammer was reading the newspaper in another room. He did not hear any splashing of water or any sound whatever where the baby was and he investigated the matter. He found the baby was under the water and its body purple. He remembered his instructions in resuscitating drowning persons, and before the doctor arrived, Mr. Hammer had succeeded in saving the life of the baby, who to all appearances had ceased breathing.

Case 20 - Asphyxiation while cleaning oil tank:

The Richfield Oil Co., one of the major oil companies operating in California, employs very competent first-aid instructors who make a determined effort to reach every employee with the training. The operator in this case, who was trained by the safety engineer of the Richfield Oil Co., received the President's Medal, awarded by the National Safety Council for meritorious service in the saving of life.

On September 26, 1929, an employee of an oil company was engaged in cleaning a tank at Davidson City, Calif. The man was provided with a hose mask but in some unknown manner the hose became disconnected from the face piece. He immediately signaled his attendant on top of the tank but the attendant was unable to pull him out alone. The attendant's cries, however, attracted the attention of Fred E. Keithley, an employee of the Richfield Oil Co., who rushed

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over and assisted in removing the man from the tank. The top of the tank was covered with 4 inches of water, but as the man was not breathing Keithley did not waste time moving him elsewhere, but laid him on a ladder which was lying on the tank top and administered the Schaefer method of artificial respiration. After 15 minutes the patient showed signs of life and after 25 minutes he could breathe without assistance. The patient was not an employee of the Richfield Oil Co.

CONCLUSION

The foregoing list of emergencies in which first aid has been administered is far from complete, as no effort has been made to uncover any cases other than those in which the Bureau of Mines training has directly entered. Many agencies are teaching methods of first-aid treatment, bringing standard methods of instruction within reach of practically everyone interested. One point generally overlooked, however, is that companies interested in accident prevention and in proper care of injured employees are by their efforts creating a group of trained first-aid men who are a distinct asset to the community.

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